Answers of Session 3b: MAC Framing, Headers and Key Functions

1.Does two consecutive APs have different frequencies, just like in cellular communication? If so, is it the same for two home routers nearby?

Yes, in Wi-Fi networks, different Access Points (APs) typically operate on different frequencies or channels to avoid interference. This concept is similar to cellular communication where different cell towers use different frequencies.

In residential settings with multiple home routers nearby, it's recommended to configure routers to use different channels to reduce interference and improve overall Wi-Fi performance. This way, each router operates on a separate channel, minimizing the chances of signal overlap and interference between neighboring networks.

2.What is the use of active scanning when we have passive scan instead?

That's a good question. Active scanning and passive scanning serve different purposes in the context of wireless networks.

- **Real-time Discovery:** Active scanning provides more immediate and up-to-date information about available networks. This can be crucial during scenarios where real-time awareness is necessary.
- **Hidden SSIDs:** Active scanning can reveal hidden SSIDs (networks that don't broadcast their presence in beacons), while passive scanning relies on the periodic beacon transmissions.
- **Connection Initiation:** During the connection process, a device often uses active scanning to actively search for networks and initiate the connection.

In summary, while passive scanning is useful for ongoing monitoring, active scanning is employed when the device needs to actively seek and discover networks, especially during specific phases like network initiation or when real-time information is essential. The choice depends on the specific requirements and use cases of the wireless device.

3.What is a Hidden SSID?

A hidden SSID (Service Set Identifier) is a feature in Wi-Fi networks where the wireless network's name is not broadcasted or advertised. In a standard Wi-Fi setup, when a router or access point broadcasts its SSID, nearby devices can easily detect and display the network's name in the list of available networks.

On the other hand, a hidden SSID does not broadcast its name. To connect to a network with a hidden SSID, a device must know the exact SSID and manually enter it during the connection

setup. While this may seem like a way to enhance security, it's important to note that hidden SSIDs do not provide a robust security measure and can be easily discovered through various means, including network sniffing.

4.Can we see ack for management frames?

Yes, it is possible to see ACKs for management frames. However, ACKs are not required for all management frames. All unicast packets require ACK whereas all the broadcast frames do not require ACknowledgement.

For example, probe request frames which are used by clients to scan for APs, do not expect an ACK.